

Serial No.: 10/696,197
Docket No.: 03283-PA (0170.0047)
Inventor(s): Parke, et al

Rejection and Response

Claims 3-11 and 13 stand finally rejected under 35 U.S.C. 103(a) as being unpatentable over *Nelson*, U.S. Patent No. 3,196,108, or *Purcell, Jr. et al*, U.S. Patent No. 6,444,601 in view of *Crouch et al*, U.S. Patent No. 6,395,200 and further in view of *Ellis*, U.S. Patent No. 5,130,184 and *Stayner*, U.S. Patent No. 4,216,136.

Nelson is said to disclose a method for preventing the advance of fire and creating a fire barrier comprising applying to the surface to be protected, an aqueous slurry of Attapulgite clay, including a fire suppressing chemical such as a salt of an inorganic acid or ammonium sulfates or ammonium phosphates. See col. 2, line 46 through col. 3, line 27 and col. 3, line 69 through col. 4, line 60.

Purcell, Jr. et al discloses the micronized self dispersing hydrous Attapulgite clay of applicant's claims 5 and 8 and a composition wherein the clay is combined with water. See claim 16.

Crouch et al discloses a liquid fire retardant composition for aerial application to ground vegetation. The composition comprises fire retardant components, a colorant and an aqueous carrier. The composition consists of a fugitive component, a non-fugitive component and a fire retardant salt, such as ammonium polyphosphate. The "fugitive component" is a dye. The non-fugitive component may be, for example, various clays and other insoluble materials, e.g., Attapulgite clay. See col. 5, lines 9-52 and col. 7, line 50 through col. 8, line 49, Tables A and B.

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On page three, fourth paragraph of the Final rejection the Examiner states that,

"Applicant's invention differs from the inventions of
Nelson, Crouch et al and *Ellis (Purcell?)* in that (applicants'
composition) contains 1 to 10% of magnesium sulfate or Epsom
salt.

The deficiency of the primary references is said by the Examiner to be made up by *Ellis*
and *Stayner*.

Ellis is said to teach fire-barrier compositions consisting of a slurry of magnesium
"oxychloride" cement, high alumina mono-calcium aluminate cement and a colloidal silica
dispersed in dimethyl formamide (DMF). The Examiner refers to TABLE 1 of *Ellis* as showing
Mg SO₄ as being a gauging solution used to wet out and hydrate MgO and calcium aluminate
cement. Table 1 of *Ellis* the aqueous "activator" fluid (called a gauging liquid) is a salt solution
of magnesium chloride (MgCl₂) or magnesium sulphate (MgSO₄), or a combination thereof. The
Examiner concludes on page 4, lines 1 and 2 of her rejection that, *Ellis* therefore documents that
Epsom salts are a specific type of magnesium sulfate.

The Examiner in her rejection states that *Stayner* documents Epsom salts as being well
recognized for producing flame retardant coatings, see col. 3, line 18 through col. 4, line 45.

The Examiner concludes her rejection by stating, "Since magnesium sulfates or Epsom
salts are well recognized in the art for providing flame retardant properties to coating
compositions, it would have been obvious to one of ordinary skill in the art at the time of
applicant's invention to employ Epsom salt of either of *Ellis* or *Stayner et al* as the flame

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retarding inorganic salt suggested by *Nelson*, absent a clear showing of unexpected results attributable to the inorganic salt employed”.

14. Applicants argue that for the reasons which follow the references cannot be combined to make a valid rejection under 35 USC § 103.

Ellis and the Instant Invention Distinguished

The *Ellis* composition is directed to a fire-barrier coating to be applied to a combustible substrate. The fire barrier can be in the form of a fire resistant laminate (col. 1, line 17). The *Ellis* composition is to be applied as an air-setting paint to be used to form a coherent fire barrier on or between susceptible wood or plastic substrates or other substrates.

While it is true that *Ellis* teaches magnesium sulfate to be an ingredient in a fire barrier coating composition. *Ellis* teaches at col. 8, lines 20-25 that this coating composition is a cement which consists of highly calcined magnesium oxide which when combined with MgSO_4 salt solution crystallizes into a network of interlocking crystals that gives strength to the system by bonding the fillers contained therein. At col. 8, lines 35, etc. MgSO_4 is said to bring about the setting of MgO . At col. 9, line 15, etc. the *Ellis* coating composition is discussed and magnesium sulfate is specified to be an ingredient of the composition which is to be used for painting or coating with the slurry being permitted to set into a hard monolithic refractory layer (col. 9, line 30, etc.) to form a fire barrier.

Unlike *Ellis*, applicants' disclosed invention is directed to an aqueous composition consisting of micronized self-dispersing hydrous magnesium alumina silicate (purified

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Attapulgitte clay), water and a flocculating agent (magnesium sulfate) (specification page 4, last paragraph). In addition as opposed to the *Ellis* composition which is paint-like, the composition of the instant invention is applied to the area to be protected in an amount of a quarter of an inch or greater (specification page 7, lines 18 and 19).

Note also that applicants' fire barrier composition is simple, having only three ingredients as opposed to the many components which make up the *Ellis* composition. The preferred embodiment of the instant invention (Acti-Quench) is a mixture of Attapulgitte clay, magnesium sulfate and water (specification page 5, lines 4-8).

Further note that the instant invention, unlike that of *Ellis*, is intended to increase the efficiency of water utilization by immobilizing the water where applied; and thus the water is prevented from migrating to untreated areas thus inhibiting unnecessary water damage (specification page 8, last paragraph).

Note also that Anti-Quench, applicants' inventive product absorbs up to 20 % of its weight or more in water (specification page 9, line 17).

The instant specification page 9, line 20, continuing onto page 10 teaches completely different use-conditions as compared to the *Ellis* thin-coating.

Unlike the *Ellis* composition which in end use is a hard monolithic layer, applicants' fire barrier composition will form an inert temporary protective coating (specification page 4, line 17); and after use can be removed with pressurized water, and can be washed from a treated surface (specification page 10, lines 20 and 21).

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Applicants' composition is effective by the use of water. The *Ellis* final coating composition as a paint would be practically free of water.

Stayner Distinguished from Instant Invention

It is true as stated by the Examiner that *Stayner* documents the use of Epsom salt in producing flame retardant coatings. However, what the Examiner overlooks is the fact that *Stayner* employs the Epsom salt in a resinous composition; while applicants employ Epsom salt in an Attapulgitic clay composition as a flocculating agent (application page 4, line 15 and page 9, third paragraph). Note particularly that *Stayner's* reinforced synthetic resin composition is used as a coating composition for molded articles (see abstract). The *Stayner* Epsom salt containing composition is incorporated into the resin to render the resin non-burning and is intended to form a permanent coating. On the other hand applicants novel composition of Attapulgitic clay, Epsom salt and water is intended to be applied to a surface as an inert temporary protective coating against the spread of a fire (specification page 4, last paragraph) and can be easily removed with water when no longer in use (application page 10 last paragraph). Clearly the resin composition of *Stayner* is not analogous to the Attapulgitic clay composition of the instant invention and the required motivation for substituting the Epsom salt of the *Stayner* resin composition into applicants' clay composition would be lacking.

Motivation

While *Ellis* and *Stayner* do show magnesium sulfate in a fire-retardant composition, there is no suggestion in the references to use magnesium sulfate along with Attapulgitic clay and

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water to form a sprayable suspension to be readily sprayed as a suspension and to set up as a film-barrier on the surface to be protected. Clearly there is no suggestion in the prior art applied to select out and add the magnesium sulfate, from among the many ingredients set forth in the *Ellis* and *Stayner* references, to the Attapulgit and water of *Nelson* or *Crouch et al.* Further, patent law requires that there be a suggestion or motivation to combine the references, in *re Fine* 5 USPQ.2d 1596 and see also *Winner v. Wang* 48 USPQ.2d 1139. No clear motivation is found in the references applied by the Examiner.

In making her rejection over the above references, the Examiner invites a showing of unexpected results attributable to the inorganic salt employed. Applicants advise that there is no requirement to make a showing of unobviousness under the Supreme Court decision *Graham v. John Deere* 148 USPQ 459. However, to convince the Examiner of patentability, the following paragraphs are referred to show unusual effects for applicants' composition.

Attention is directed to the tests set forth in the tables on pages 13-17 of the specification which show that Acti-Quench™ (a clay based fire retardant) performed satisfactorily as compared with Barricade™ (a polymer based fire retardant) and Nochar Fire Preventer™ (a water-soluble fire retardant). In fact in test Table 2 Acti-Quench™ was superior to the commercial products and in other specific categories Acti-Quench™ out performed the commercial product.

Response to the Examiner's Response to Arguments

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On page 4, last paragraph of the Official Action, the Examiner states that, since Epsom salt has been shown to provide flame retardant properties, it would have been obvious to one of ordinary skill in the art to employ Epsom salt of either *Ellis* or *Stayner et al* as the flame retarding inorganic salt suggested by *Nelson*.

It is respectfully pointed out that *Nelson* discloses ammonium salts along with Attapulgitic clay. *Nelson* does not disclose magnesium sulfate in combination with Attapulgitic, and the Examiner has not shown the equivalence between the ammonium salts of *Nelson* (col. 2, line 20, etc.) and the magnesium sulfate salts of the instant invention.

Further, referring to the last paragraph of page 4 of the Official Action, the Examiner states that, Epsom salt has been shown to provide flame retardant properties, it would be obvious to use the Epsom salt of *Ellis* or *Stayner et al* as the flame retarding inorganic salt suggested by *Nelson*. It is respectfully pointed out that *Ellis*, col. 8, lines 18, etc. states that MgSO_4 when combined with magnesium oxide crystallizes into a network of interlocking crystals and gives strength to the system by bonding the fillers contained therein. The fillers are sand, gravel crushed rock, etc. Clearly this teaching of *Ellis* is not suggestive of adding magnesium sulfate per se to Attapulgitic clay. The use for magnesium sulfate in *Ellis* is distinct from the use of magnesium sulfate of the instant invention. As for *Stayner et al* the Epsom salt of *Stayner et al* as pointed out above is for a different purpose.

Claims 3-13 (claim 12 is canceled) are rejected under 35 USC § 103(a) as being unpatentable over *Speronello et al*, U.S. patent No. 6,432,322, in view of *Hallo et al*, U.S. patent

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No. 6,482,473, and *Drew et al*, U.S. patent No. 5,204,254.

Speronello et al is said to contain a composition containing Attapulgite clay, magnesium sulfate and water.

Hallo et al is said to disclose a process for protecting surfaces from concentrated heat. The process comprises forming a colloidal suspension gel consisting essentially of magnesium silicate hectorite clay and water. *Hallo et al* mentions a laponite clay with laponite clay being equated to Attapulgite clay.

Drew et al is said to disclose a composition comprising Attapulgite clay and mixtures thereof along with a flame retardant selected from the group consisting of bicarbonate of soda, Epsom salt and mixtures thereof.

The Examiner concludes:

Because the references outlined above have provided incentive for formulating the claimed compositions and indicate that the components therein possess flame protective properties, a method for preventing the advance of a fire utilizing the components of *Speronello et al* in the weight ratios suggested by *Hallo et al* and *Drew et al* would have also been obvious to one of ordinary skill in the art at the time of applicant's invention.

For the following reasons, it is believed that the applied references are not combinable to make a valid rejection under 35 USC § 103.

Speronello et al teach preparing a "massive body" which is defined as being a solid

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shaped article such as a tablet. A composition of a metal chlorite, a solid acid source and a clay are to be used in preparing said "massive body"; with the clay being useful in assisting in preparing the solid shaped article (tablet). Note particularly that *Speronello et al* are interested in preparing tablets, on the other hand, note that applicants' composition is in the form of a novel dispersion of active ingredients in water to be used as a spray to form a fire-barrier.

Speronello et al is deficient as a reference for the following reasons:

- 1) The *Speronello et al* reference does not teach their composition to be a fire-retardant composition, but rather teaches it to be a "massive body" useful as a tablet.
- 2) The *Speronello et al* reference is for a solid composition while applicants' composition is for a liquid dispersion.
- 3) The *Speronello et al* reference does not teach the proportions of ingredients as set forth in the claims.
- 4) Note also that *Speronello et al* teach col. 3, lines 35-40 that Attapulgit is a filler. This is contrary to applicants' use, namely, a suspending agent.
- 5) *Speronello et al* do not teach the method of preventing an advance of a fire as taught by applicants' claims 6-13.

To make up the deficiencies of *Speronello et al*, the Examiner has combined *Hallo et al* and *Drew et al* with *Speronello et al* to make a rejection.

Hallo et al is directed to a heat dissipating composition which dissipates heat from one area of a heated surface to another portion of the same surface. The *Hallo et al* composition is to

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be used primarily in welding and soldering processes, with the composition comprising 85 to 99.5 percent water, 15 to about 0.5 percent magnesium silicate hetorite clay forming a colloidal suspension gel when mixed with water. The reference is deficient in not teaching the use of magnesium sulfate in their heat dissipating composition. Magnesium sulfate and magnesium silicate hetorite clay are distinct chemical entities and are not seen to be equivalent.

In addition, and importantly, *Hallo et al* cannot be properly combined with *Speronello et al* because these two references involve non-analogous art. For example, *Speronello et al* is directed to preparing a "massive body" to be used for supplying chlorine dioxide and by contrast *Hallo et al* is directed to producing a heat-retardant composition.

Drew et al teach a flowable pressure-compensating composition which is flame-resistant, comprising Epsom salt as a flame retardant along with silicone oil, glycerin or a wax/oil material all to be used in a padding device.

While the *Drew et al* reference teaches the use of Epsom salt and Attapulgitic clays, the reference teaches away from the use of water. Note that at col. 7, lines 55-68 and col. 8, lines 1-7, the reference states that, viscosity-increasing agents, e.g., Attapulgitic, is to be used with glycerin or silicone oil alone without the need to employ water; and that a further advantage of not using water is the fact that the freezing point is lowered. Clearly, *Drew et al* teach away from applicants' compositions which encompasses a large amount of water.

In passing, it is also pointed out that *Drew et al*, who teach a pressure-compensating composition, is non-analogous to *Hallo et al* who teach a heat dissipating composition and

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Speronello et al who teach a "massive body" useful in chlorine dioxide generation.

In addition, it is further pointed out that the numeric limitations of the claims have not been addressed; nor has the method of claims 6-11 and 13 been addressed.

Case Law Applied

A rejection under 35 U.S.C. § 103 is governed by the Supreme Court decision *Graham v. John Deere* 148 USPQ 459 and decisions thereunder. In accordance with *Graham v. John Deere*, the Examiner must set forth the differences in the claim over the applied references. The second step requires that the Examiner set forth the proposed modification of the reference which would be necessary to arrive at the claimed subject matter. And, the third step requires that the Examiner explain why the proposed modification would be obvious.

In explaining obviousness, there must be some suggestion or motivation in the references for combining the references of the prior art. (In re Fine 5 USPQ2d 159.) The fact that prior art could be modified to reflect features of the claimed invention does not make that modification obvious unless the desirability of such a modification is suggested by prior art. (In re *Gorden* 221 USPQ at 1127.) Clearly, the prior art cited by the Examiner lacks such a suggestion or motivation to make the instantly claimed combination. The rejection should be withdrawn.

Response to the Examiner's Response to Arguments

On page 7, last paragraph of the Official Action, the Examiner states that "In this case, the prior art relied upon is reasonably pertinent to the particular problem with which the applicant was concerned". The Examiner has made a conclusional statement without pointing out

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pertinence. Surely, the “massive bodies” of the *Speronello* reference cannot be pertinent to the “fire retardant” of the instant invention.

Summary

Applicants have pointed out wherein non-analogous art has been improperly combined.

No prior art reference or combination thereof shows applicants’ method of using the claimed composition for fighting fires.

Applicants’ composition as herein pointed out above has unobvious properties which are persuasive of unobviousness.

Applicants further point out that their preferred product (claims 5 and 8) is not a ground Attapulgitic clay, but an Attapulgitic which is highly purified made by a wet chemical process and has particles which are extremely small.

Further, the Epsom salt in applicants’ product is not used as a fire-retardant *per se*, but is used to activate the charges on the micro-processed Attapulgitic, and thereby making a stronger gelling product.

Further note, applicants claimed composition is to be used as a barrier to prevent the advance of a fire (claim 6 and dependent claims).

Applicants have not amended the claims in a manner which requires a new search.

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It appears that all matters have been satisfactorily addressed. It is requested that the Examiner indicate allowable subject matter.

Sincerely,

September 27, 2006
Date

Sam Rosen
Sam Rosen
Reg. No. 37,991

<p align="center">CERTIFICATE OF TRANSMISSION</p> <p>I hereby certify that this correspondence, consisting of 16 pages, is being transmitted via facsimile to the Commissioner for Patents, P. O. Box 1450, Alexandria, VA 22313-1450.</p> <p>Date: September 27, 2006 Fax No.: 1-571-273-8300</p> <p>By: <u>Judy Robertson</u> Judy Robertson</p>

SR/jjr (09/26/06)

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